

REMARKS/ARGUMENTS

Favorable reconsideration of this application in light of the following Remarks and discussion is respectfully requested.

Claims 1-10 are pending in this application. No claims are canceled or amended herewith.

In the Office Action, Claims 1-3, and 6 were rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 6,192,827 to Welch in view of JP11-037315 to Osaka and U.S. Patent No. 4,771,805 to Maa; Claims 4 and 7 were rejected under 35 U.S.C. §103(a) as unpatentable over Welch, Osaka, and Maa and further in view of U.S. Patent No. 5,242,538 to Hamrah; Claims 5, 8 and 9 were rejected under 35 U.S.C. §103(a) as unpatentable over Welch, Osaka, Maa and further in view of U.S. Patent No. 5,788,799 to Steger; and Claim 10 was rejected under 35 U.S.C. §103(a) as unpatentable over Welch, Osaka, Maa, Steger and Hamrah. It is respectfully requested that the rejections of the claims be withdrawn, and that the claims be allowed, for the following reasons.

The present invention, as set forth in the independent claims, is directed to a vacuum processing apparatus. Specifically, as recited in Claim 1 a deposit shield is disposed along an inner peripheral wall of the vacuum processing chamber, the deposit shield has a notch portion at a position facing the carrier port. Further, a shutter is shaped to fit into the notch portion of the deposit shield and is configured to be elevated when the shutter is fitted inside the notch portion of the deposit shield, an inside surface of the shutter is substantially flush with an inside surface of the deposit shield.

The present invention, as set forth in the claims, can provide numerous advantages that are not provided by the applied art. By way of specific, non-limiting examples, the combination of features recited in the independent claims can provide a vacuum processing apparatus well suited to form a film or etch for a substrate to be processed by a

semiconductor manufacturing technique using plasma. Specifically, by providing the features of the claims discussed above, plasma can be prevented from spreading into a carrier port for carrying a substrate to be processed into and out of a chamber when plasma is generated. Thus, disorder of the plasma can be eliminated to ensure a uniform plasma processing which is simple in structure and can be made small in size.

It is respectfully submitted that none of the references of record, including Welch, Osaka, Maa, Steger and Hamrah, whether taken alone or in combination with one another, discloses or renders obvious the above-discussed claimed features recited in the independent claims. It is therefore also submitted that these references do not teach or suggest the above-described advantages that are provided by exemplary embodiments of the present invention.

Welch et al. discloses gap dimensions 88 and 90 as discussed in column 7, lines 22 to 38 and FIG 10. The gap dimensions 88 and 90 serve to inhibit generated plasma from moving into the trans passage. As can be understood from FIG. 10, a passage door 60 and upper and lower chamber liner portions 94 and 96 do not touch with each other. With the gap, it is possible to prevent the generation of particles that results from the contact between these members.

Osaka discloses a gate valve in which a valve element 32 having a tapered surface on which a sealant 32 is mounted, in tight contact with a valve seat 28, as shown in FIG. 2(B) and as discussed in the Abstract.

As described above, Welch et al. achieves its effect without making the passage door 60 in tight contact with the portions (without touching), whereas Osaka discusses a gate valve that achieves a sealing effect by making the valve element 32 in tight contact with the seat. Therefore, the combination itself of these references is not reasonable or obvious, and a person having ordinary skill in the art would not easily conceive such a combination.

Even if Welch et al., Osaka and Maa are combined together, it is structurally not possible to form a flat surface without recesses and projections, in contrast to the peripheral wall on the vacuum processing area 14 side of exemplary embodiments of the present invention. With the formation of the flat surface, exemplary embodiments exhibit an effect of preventing the disturbance of plasma, which is an important factor of the processing apparatus. That is, exemplary embodiments of the present invention achieve a flat inner circumferential wall surface while achieving the blocking of plasma with use of the spiral seal 61 and the blocking of the particles with the L-shaped member. Such advantages cannot be easily expected even from a combination of Welch et al. and Osaka.

Moreover, it is respectfully submitted that there is no basis in the teachings of Welch et al., Osaka or Maa to support their applied combination. Certainly, the outstanding Office Action fails to cite to any specific teachings within the references to support the applied combination. Accordingly, it is respectfully submitted that the combination of Welch et al., Osaka, and Maa is the result of hindsight reconstruction in view of the teachings of the present specification, and is improper. Thus, Applicants' respectfully submit that the claimed invention is not obvious from the combination of Welch et al., Osaka and Maa, and therefore is fully patentable over these references.

Consequently, for the reasons discussed in detail above, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. Therefore, a Notice of Allowance is earnestly solicited.

Application No. 10/763,238
Reply to Office Action of October 14, 2005.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact the undersigned representative at the below listed telephone number.

Respectfully submitted,


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